UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,157	12/30/2003	Carlos J. Gonzalez	SNDK.348US0	7914

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EXAMINER
LI, ZHUO H

ART UNIT	PAPER NUMBER
2185	

MAIL DATE	DELIVERY MODE
04/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/750,157	GONZALEZ ET AL.
	Examiner	Art Unit	
	ZHUO H. LI	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 February 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>44-50</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>44-50</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some *   c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office action is in response to applicant's response filed 2/4/2009.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3.   Claims 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conley (US

2002/0099904) in view of Chien et al. (US 6,742,078 hereinafter Chien) and Brinkmann et al.

(US 2006/0242212 hereinafter Brinkmann).

Regarding claim 44, Conley discloses a method of operating a memory system as shown in figure 2 including a controller (301, figure 2) and a non-volatile memory, i.e., flash memory (figure 2), the non-volatile memory having a plurality of units of erases (85-88, figure 15), the method comprising establishing an initial set of metablock linkings by which the controller accesses the non-volatile memory ([0038]-[0039]), each metablock linking comprised of a plurality of units of erase and where the controller forms said initial set of metablock linkings according to a rule ([0066], the controller programming of data into at least one page of each of the blocks forming the metablock) and storing a record of updating of the first linking in the non-volatile memory ([0067], use additional blocks to update a data file stored in the metablock). Conley differs from the claimed invention in not specifically teaching the steps of subsequently determining that one or more units of erase in a first metablock linking of the initial set of metablock linkings is defective and updating the first metablock linking so that it no longer contains said defective unit of erase. However, Chien discloses a flash memory system comprising four different types of blocks, data blocks, spare blocks, a new block and a link-table blocks (col. 2 lines 35-53), wherein the link-table blocks comprising a link table which it is used to record the link relationship between the logic block and the actual block (col. 3 lines 51-57 and col. 4 line 55 through col. 5 line 3). In addition, Chien further discloses the method comprising subsequently determining that one or more units of erase in a first metablock linking of initial set of metablock linkings is defective (col. 3 lines 43-46), and updating the first metablock linking so that it no longer contains the defective unit of erase, i.e., stored updated data in a substituted block (col. 3 line 63 through col. 4 line 20). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify

Conley in having the steps of subsequently determining that one or more units of erase in a first

metablock linking of the initial set of metablock linkings is defective and updating the first

metablock linking so that it no longer contains said defective unit of erase, as per teaching of

Chien, because it provides protection against power failure to protect the data link structure and

improves stability (see Chien, col. 1 lines 12-15). Furthermore, the combination of Conley and

Chien differs from the claimed invention in not specifically teaching the record only including

deviations from the rule. However, Brinkmann teaches to eliminate bottlenecks in the links to

storage system by having the record only including deviations from the rule ([0079] and [0084]-

[0088]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to modify the combination of Conley and Chien in having the record

only including deviations from the rule, as per teaching of Brinkmann, in order to eliminate

bottlenecks in the links to storage system by reducing the number of table entries to be backed

up.

Regarding claim 45, Chien teaches updating the first metablock linking including

replacing the one or more defective units of erase with non-defective units of erase (col. 3 line 43

through col. 4 line 20).

Regarding claim 46, Chien teaches said non-defective units of erase being selected from a

list of unlinked units of erase (col. 3 line 63 through col. 4 line 3).

Regarding claim 47, Chien teaches said list of unlinked units of erase being maintained in

the non-volatile memory (figure 1 and col. 3 lines 8-30).

Regarding claim 48, Chien discloses subsequent to said replacing the defective unit of

erase with non-defective units of erase (col. 3 lines 22-41), updating said list of unlinked units of

erase (col. 5 lines 18-45).

Regarding claim 49, Chien discloses said non-defective units of erase being selected from

a unit of erase formerly belonging to another linking (col. 4 lines 4-20).

Regarding claim 50, Conley teaches said rule being implemented by firmware on the

memory system ([0038]).

Response to Arguments

4.   Applicant's arguments filed 2/4/2009 have been fully considered but they are not

persuasive.

In response to applicant's argument that Brinkmann does not disclose the limitation of

"the record only including deviations from the rule" as recited in claim 44, examiner respectfully

disagreed because Brinkmann clearly teaches the share strategy to be used in eliminating

bottlenecks in the links to storage systems in order to deviation from the desire distribution

([0079]), and further define the share strategy can be integrated both on the linked computer

systems and software RAID methods ([0085]) to reduce the number of table entries to be backed

up by not allocating to each individual data block its own entry, but by disposing of block

quantities over a common entry in the table such that the record only including deviation from

the rule, which is an extent of a quantity of blocks that are interlinked in the logical address

space ([0086]). Thus, it is respectfully submitted that Brinkmann discloses what the Office

Action admits is lacking in the Conley and Chien references and that, consequently, the Office

Action has made the required *prima facie* case for the rejection. Further, as is believed clear from

the preceding discussion, Brinkmann is concerned with the same subject matter as the present

application.

In response to applicant's argument that there is no suggestion to combine the references,

the examiner recognizes that obviousness can only be established by combining or modifying the

teachings of the prior art to produce the claimed invention where there is some teaching,

suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the combination of Conley and Chien and Brinkmann are combinable and the

motivation of combining Brinkmann with the combination of Conley and Chien is to eliminate

bottlenecks in the links to storage system by reducing the number of table entries to be backed

up.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Arming et al. (US 2002/0049740) teaches a method and system to automatically

detecting deviations in a data table comprising a multitude of records and a multitude of columns

(see abstract).

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ZHUO H. LI whose telephone number is (571)272-4183. The

examiner can normally be reached on Mon - Fri 6:00am - 2:30pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tuan V. Thai/   Zhuo H Li
Primary Examiner, Art Unit 2185   Examiner
                                                                              Art Unit 2185

/Z. H. L./
Examiner, Art Unit 2185